IMPLEMENTATION PROCEDURES (IP)
CHANGE NOTICE

SECTION 14 - BUILDING REMOTE PLATFORMS

CH	DATE	POC	SECT	REMARKS
1	1/17/97	C. Burritt	14.3.2.1	Updated Segment Table (14.3.2.1).

SECTION 14. BUILDING REMOTE PLATFORMS

14.1 Scope

This section of the Implementation Procedures provides installation instructions for loading, configuring and using remote access SUN SPARC platforms. These segments are used to enable a remote site to connect to a server at host site, via a low-speed STU_III connection. Sun workstations can be configured as “standalone” or “EM_client” workstations.

Standalone systems. These are self-contained workstations, not requiring an EM server, DB server or Sybase. The telecommunications link (e.g., PPP) is only established when access to a remote Applications server is required - typically to run applications with the ASCII interface. This configuration is much more efficient in terms of telecommunications link utilization - more GCCS components are hosted on the ‘local’ sun workstation, requiring less use of the ‘host’ system. The standalone configuration is the recommended configuration for remote Sun workstations. However, the desktop folder system is not available since Sybase is not used in this cofiguration. This prevents you from using AMHS and Command Center Apps.

EM_client systems. This configuration acts just like any GCCS client. The telecommunications link is established at system boot time, and remains continuously connected until the workstation is shutdown. While booted, the telecommunications link between the remote client and the host system/site acts like an Ethernet LAN connection, only slower. The disadvantage is that this configuration does not take advantage of the capability of a Sun workstation to host other components of GCCS, but instead uses its network access, which can be very slow, for all GCCS functions. Use of this configuration for remote Sun workstation is not recommended - use a standalone configuration with auto-mounted home directories.

14.2 Information Required to Build a Remote Workstation

14.2.1 Related documentation

Secret IP Router network (SIPRNET) communications Server STU-III operations and Maintenance Guidebook, 28 June 1995, DISA.

NOTE: Prior to installation of software, ensure that the Sun workstation is a Sun SPARC 5 or better, with at least 64 MB RAM and at least 2.1 Gb disk storage.

14.2.2 Question Worksheet

1. Standalone _____.

or
2. EM Client _____.
3. Cisco 2511 Ethernet Port address
_____.
4. Character base Application Server IP address
_____.
5. Cisco 2511 asynchronous port IP address
_____.
6. Serial Port (a or b) _____.
7. Phone number of communications server
_____.
8. Baud rate
_____.
9. CISCO 2511 userid and
password_____.
10. **EM Client ONLY**
Socket numbers of the host EM Server:
_____.

14.3 Installing and Configuring Remote Standalone

14.3.1 Core segments

Prior to loading any GCCS software segments on your workstations, review the section on Segment Installation of the GCCS System Administration Manual. Use of the Segment Installer is explained in depth. If you are building this remote workstation at a host site, you can take advantage of the network installation servers rather than load from tape. You must ensure that you mount the */h/data/global/SysAdm* directory from the 'Emserver' on this workstation:

mount <emserver name/ip address>:/h/data/global/SysAdm /data/global/SysAdm

Install all segments listed in the table and follow the instructions listed in Comments field.

Table 14.3.1-1 Core Segments for Remote Platforms

Application	Version	Size	Tape	Comments
Applix	3.2	92379	2.2 (AP.1)	Must be loaded before Command Center Apps
ASET Server	gv.1.02	25	2.2 (AP.2)	
Auditing	3.0.04	112	2.2 (AP.1)	Load BSM Patch 1 before deinstalling old Auditing.

Table 14.3.1-1 Core Segments for Remote Platforms (cont.)

EM Patch	6.0.1	22462	2.2 (AP.1)	Load only on an upgrade from 2.1 to 2.2.
EM Printer Admin	2.3.1.04	3084	2.2 (AP.1)	
filemgr	1.0	19	2.2 (AP.1)	
GCCS COE	2.2.0.5.02	68153	2.2 (AP.1)	Reboot Workstation after loading.
Kernel Patch 1	1.0	309	2.2 (AP.1)	Must reboot after loading.
Kernel Patch 2	1.0	307	2.2 (AP.1)	
GCCS ftptool	4.3	342	2.2 (AP.1)	
ICON FOR APPLIX	1.0	21	2.2 (AP.1)	Install if not using Sybase
PERL	6.0	4720	2.2 (AP.1)	
Remote Access	1.2	1624	2.2 (AP.1)	Install last, refer to instructions below for installing!
Remote Install	1.1.1	2068	2.2 (AP.1)	
System Maintenance	1.7	421	2.2 (AP.1)	
Tcl/Tk	7.5	10504	2.2 (AP.1)	
UPSI Power Monitor	1.3b	441	2.2 (AP.1)	Cable must be connected prior to installation. Load only if using UPSI system.
XLOCK ICON	1.0	21	2.2 (AP.1)	

NOTE: You may wish to install any other segments on this workstation prior to installation of the Remote Access segment, since it reconfigures the workstation's Ethernet ports.

14.3.2 Remote_Access Segment

The following are the steps for installing the Remote Access segment. Load the segment with the SAInstaller. See Table 14-3-2-1.

Table 14.3.2-1. GCCS Remote Connectivity Segment

Application	Version	Size	Tape	Comments
Remote Connectivity Segments				
Remote Access	1.2		2.2 (AP.1)	

WARNING: Do not install **REMOTE_ACCESS** on anything other than a remote SPARCstation. Installation disables the SPARCstation's Ethernet ports, allowing only PPP dial-up network access. Once installed, a complete reinstallation of the Operating System and all GCCS components will be required in order to restore use of the Local Area Network (LAN) Ethernet ports!

WARNING: Among the many files installed in this step is */etc/asppp.cf*. This file contains a debug parameter which defines the amount of diagnostics information is provided during a connection. Changing this parameter can be useful, when debugging a connection problem, in order to provide additional diagnostics information. Do not arbitrarily change this parameter - it should be left at its default (currently, 4). Should you change it, be sure to change it back to its original value.
REMINDER: Only edit this file when directed to do so by knowledgeable Solaris PPP experts who are attempting to debug a connection problem.

The following are a list of questions that the installer must answer to complete the installation this segment:

Do you wish to continue the installation of this Remote Access (y/n) [n]:

1. Enter [**Y**] and press the **<Return>** key.

Do you want to continue with the installation of <SUNWapppr> [y or n]

2. Enter [**Y**] and press the **<Return>** key.

Do you want to install these as setuid/setgid files [y/n or q]

3. Enter [**Y**] and press the **<Return>** key.

Do you want to continue with the installation of <SUNWbnuu> [y or n]

4. Enter [**Y**] and press the **<Return>** or **<Enter>** key.

Do you want to continue with the installation of <SUNWbnur> [y or n]

5. Enter [**Y**] and press the **<Return>** or **<Enter>** key.

Press <cr> to continue

6. Press the **<Return>** or **<Enter>** key.

What is the PPP configuration of this workstation? a) Standalone EM Server workstation, infrequent use of PPP b) EM Client, PPP connection always up

7. Enter [**a**] and press the **<Return>** or **<Enter>** key.

Enter the Ethernet IP Address of the Cisco 2511 COMM SERVER: _____

8. Enter **IP Address** and press the **<Return>** or **<Enter>** key.

Enter the IP Address of the APPLICATIONS SERVER: _____

9. Enter **IP ADDRESS** and press the **<Return>** or **<Enter>** key.

Enter the IP Address to user for the PPP connection: _____

10. Enter **IP Address** and press the **<Return>** or **<Enter>** key.

Enter the SERIAL PORT the modem is connected to ('a' or 'b'): __

11. Enter [**a** or **b**] and press the **<Return>** or **<Enter>** key. It is important that you physically verify which serial port is connected to the STU-III. Look at the back of the SPARCstation - each serial port is labeled below the serial connector, "Serial A" (on the right, when facing unit from the rear) and "Serial B" (on the left, when facing unit from the rear).

Enter the connection type:
a) STU-III modem
b) Direct connect to communications server

12. Enter the correct response for your site and press the **<Return>** or **<Enter>** key.

NOTE: If your site has direct connection, you will not be prompted for the telephone number of the communications server.

Enter the TELEPHONE NUMBER OF THE COMMUNICATIONS SERVER: ,_____

13. Enter telephone number of the communications server, for STU-III connection only, with a leading ',' (e.g., **,7037358882**) and press the **<Return>** or **<Enter>** key.

Enter the serial port BAUD Rate (9600 19200 38400): _____

14. Enter the baud rate for your workstation's serial port (ie., the rate at which your serial port connects to your modem, STU-III, MUX or direct line - should be set at the same rate as the device to which you connect, **38400** is recommended) and press the **<Return>** or **<Enter>** key.

NOTE: The configuration information that was entered will be displayed for validation. If correct enter [**Y**] otherwise, enter[**N**] and re-enter the correct information.

Is the above information correct (y/n)? __

15. Enter [**Y**] and press the **<Return>** or **<Enter>** key.

Installation completed, please REBOOT the system. Press <**Return**> to continue..

16. Press the **<Return>** or **<Enter>** key and the workstation will re-boot.

14.4 Installing and Configuring Remote EM_Client

14.4.1 Core segments

Prior to loading any GCCS software segments on your workstations, review the section on Segment Installation of the GCCS System Administration Manual. Use of the Segment Installer is explained in depth. If you are building this remote workstation at a host site, you can take advantage of the network installation servers rather than load from tape. You must ensure that you mount the /h/data/global/SysAdm directory from the 'Emserver' on this workstation:

mount <emserver name/ip address>:/h/data/global/SysAdm /data/global/SysAdm

Install all segments listed in Table 14.3.1-1 and Table 14.3.2-1

and follow the instructions listed in Comments field.

NOTE: You may wish to install any other segments on this workstation prior to installation of the Remote Access segment, since it reconfigures the workstation's Ethernet ports.

14.4.2 Remote_Access Segment (EM_Client)

The following are the steps for installing the Remote Access segment. Load the segment with the SAInstaller.

WARNING: Do not install **REMOTE_ACCESS** on anything other than a remote SPARCstation. Installation disables the SPARCstation's Ethernet ports, allowing only PPP dial-up network access. Once installed, a complete reinstallation of the Operating System and all GCCS components will be required in order to restore use of the Local Area Network (LAN) Ethernet ports!

WARNING: Among the many files installed in this step is */etc/asppp.cf*. This file contains a debug parameter which defines the amount of diagnostics information is provided during a connection. Changing this parameter can be useful, when debugging a connection problem, in order to provide additional diagnostics information. Do not arbitrarily change this parameter - it should be left at its default (currently, 4). Should you change it, be sure to change it back to its original value.
REMINDER: Only edit this file when directed to do so by knowledgeable Solaris PPP experts who are attempting to debug a connection problem.

The following are a list of questions that the installer must answer to complete the installation this segment:

Do you wish to continue the installation of this Remote Access (y/n) [n]:

1. Enter [**Y**] and press the **<Return>** key.

Do you want to continue with the installation of <SUNWapppr> [y or n]

2. Enter [**Y**] and press the **<Return>** key.

Do you want to install these as setuid/setgid files [y/ n or q]

3. Enter [**Y**] and press the **<Return>** key.

Do you want to continue with the installation of <SUNWbnuu> [y or n]

4. Enter [**Y**] and press the **<Return>** or **<Enter>** key.

Do you want to continue with the installation of <SUNWbnur> [y or n]

5. Enter [**Y**] and press the **<Return>** or **<Enter>** key.

Press <cr> to continue

6. Press the **<Return>** or **<Enter>** key.

What is the PPP configuration of this workstation? a) Standalone EM Server workstation, infrequent use of PPP b) EM Client, PPP connection always up

7. Enter [**b**] and press the **<Return>** or **<Enter>** key.

Enter the Ethernet IP Address of the Cisco 2511 COMM SERVER: _____

8. Enter [**Y**] and press the **<Return>** or **<Enter>** key.

Enter the IP Address of the APPLICATIONS SERVER: _____

9. Enter **IP ADDRESS** and press the **<Return>** or **<Enter>** key.

Enter the IP Address to user for the PPP connection: _____

10. Enter **IP Address** and press the **<Return>** or **<Enter>** key.

Enter the SERIAL PORT the modem is connected to (‘a’ or ‘b’): __

11. Enter [**a** or **b]** and press the **<Return>** or **<Enter>** key. It is important that you physically verify which serial port is connected to the STU-III. Look at the back of the SPARCstation - each serial port is labeled below the serial connector, “Serial A” (on the right, when facing unit from the rear) and “Serial B” (on the left, when facing unit from the rear).

Enter the connection type: a) STU-III modem b) Direct connect to communications server

12. Enter the correct response for your site and press the **<Return>** or **<Enter>** key.

NOTE: If your site has direct connection, you will not be prompted for the telephone number of the communications server.

Enter the TELEPHONE NUMBER OF THE COMMUNICATIONS SERVER: ,_____

13. Enter telephone number of the communications server, for STU-III connection only, with a leading ‘,’ (e.g., **,7037358882**) and press the **<Return>** or **<Enter>** key.

Enter the serial port BAUD Rate (9600 19200 38400): _____

14. Enter the baud rate for your workstation's serial port (ie., the rate at which your serial port connects to your modem, STU-III, MUX or direct line - should be set at the same rate as the device to which you connect, **38400** is recommended) and press the **<Return>** or **<Enter>** key.

NOTE: The configuration information that was entered will be displayed for validation. If correct enter [**Y**] otherwise, enter[**N**] and re-enter the correct information.

Is the above information correct (y/n)? __

15. Enter [**Y**] and press the **<Return>** or **<Enter>** key.

Installation completed, please REBOOT the system. Press <**Return**> to continue..

16. Press the **<Return>** or **<Enter>** key and the workstation will re-boot.

14.5 Login to Remote Platforms

14.5.1 Standalone

In order to use a standalone workstation, there should be a local login account for a user and a character based login account at the host site. A user will login at the GCCS globe login screen and will be presented with a desktop with two icons, labeled "Control" and "Access". These two programs offer the user the means of accessing the host site's GCCS suite.

The "Control" icon establishes the communication link with the host site's server. The user will be prompted for a user-id and password for the CISCO 2511 router. This information is available from the router administration staff. The "Access" icon establishes a terminal session with the host server after the communications link is established. The user will be presented with an 'xterm session' window that the user will

key in the appropriate login for the host site's server. The user will then be presented with a menu of character based applications that the user is authorized to use. The user will use the "Tab" key to maneuver through the menu to select an application to use and then press the <**Return**> or <**Enter**> key to activate the application.

14.5.2 EM_Client

14.5.2.1 Booting and Login of EM_Client Workstation

When a remote workstation that has been configured as an "em_client" is booted, the PPP software automatically establishes the communications link with the host site. The workstation will prompt for 'username' and 'password' information of an account on the Cisco 2511 Remote Access Server. After this information is entered, a line of dots will be drawn, and beeps will sound, while the workstation establishes a connection to the Cisco 2511 Remote Access Server. Once the connection is complete, the system will finish booting.

14.5.2.2 Initial Configuration of EM_Client Workstion

Perform the following steps:

1. Logon to the globe as sysadmin. You must take the following corrective steps:

2. Edit **[vi]** the **/etc/resolv.conf** file. Verify that a fully qualified domain name is contained in this file (e.g., bur.osf.disa.mil). This information is entered when Solaris is installed - improperly entering this information at that time will lead to the system being in **DEGRADED** mode.

3. Edit **[vi]** the **/etc/services** file. Change the LAN SEGID to mat that of the EM server at the host site. Write down the lines that contain **udp** under the **# GCCS Exec Mgr Services** section of this file.

Edit **[vi]** the **/etc/services** file on the machine you are configuring.
Scroll down approximately 85% through the document until you reach lines that look like this:

GCCS Exec Mgr Services
u6sysexec nnnnn/udp

Change the lines containing **ud**p under the **# GCCS Exec Mgr Services** section of this file so that the **nnnnn** entries match those of the EM Server.

4. Edit **[vi]** the **/etc/netmasks** file. Change the netmask as follows:
Determine the IP address of the host site's EM Server (e.g., 164.117.208.227),
Change the netmask in the **/etc/netmasks** file to be the address from the previous step, but with the fourth octet changed to a zero (e.g., 164.117.208.0). Edit **[vi]** the **/etc/networks** file. Change the **SUBNET1.GCCS** to the IP address of the EM Server (e.g., 164.117.208.227).

5. Logon to the **'root**' account and execute a '**ping**' of the EM Server. If this completes without error, the workstation can be initialized as a NIS+ client:

6. Edit **[vi]** the **/etc/hosts** file. Add an alias of the host site's EM Server to **emserver**.

7. Initialize NIS+. See the Systems Administration Manual, GCCS version 2.1, section 6.2.3, for the procedure for initializing a workstation on an Ethernet LAN as a NIS+ client.

8. After NIS+ reboot, login as **sysadmin**, and do the following:

   Open an X-Term window and execute the following commands:

   # **cd /h/REMOTE_ACCESS**
   # **/h/EM/progs/load_profiles data/Profiles/Profiles.RA**

   Add additional Application Server entries, if desired. The IP address/hostname pairs must be added to the **/etc/hosts** file, and the host names added to the **/h/REMOTE_ACCESS/data/config/apps_hosts** file.

14.5.3 Debugging and Modifying Configuration

14.5.3.1 Incorrect Serial Port

WARNING: It is important that you physically verify which serial port is connected to the STU-III. Look at the back of the SPARCstation - each serial port is labeled, directly below the serial connector, "Serial A" (on the right, when facing unit from the rear) and "Serial B" (on the left, when facing unit from the rear).

Failure to enter the correct serial port identifier [a or b] will result in not being able to connect to the host site.

Should you incorrectly enter the serial port identifier, or later choose to physically reconfigure which serial port is used (the latter is not recommended), you can manually reconfigure REMOTE_ACCESS to specify the serial port to use. Perform these recovery actions:

a. Logon as **root**

b. Edit **[vi]** the file **/etc/uucp/Devices.ra-ppp**

   1. The last two lines of this file should look as follows (assuming port 'a' was selected):

      ACU cuaa - 38400 stu
      Direct cuaa - 38400 direct

2. Change the letter immediately following “cua” on each line (e.g.., the ‘a’) to the port ID you wish to use (e.g., ‘b’):

ACU cuab - 38400 stu
Direct cuab - 38400 direct

c. Reboot

Reminder: Only edit this file as a last resort if you have incorrectly entered your port ID.

NOTE: Should you incorrectly enter the phone number, or later choose to change the phone number used (the latter is not recommended), you can manually reconfigure REMOTE_ACCESS to specify the phone number to use.

14.5.3.2 Incorrect Telephone Number for STU-III

Perform these actions:

1. Logon as ***root***

2. Edit **[vi]** the file **/etc/uucp/Systems.master**
   Change the phone number, as appropriate.

3. **Reboot.** See system reboot instructions in section 3.3.1, *How to reboot a Sun workstation.,* on page 4.

REMINDER: Only edit this file if you have incorrectly entered the phone number to be called.

14.5.3.3 Unable to Connect to Host Site

Should you be unable to connect to the host site, despite all parameters and configuration items being correct [**PLEASE CHECK**], the CISCO 2511 router at the host site may need to be restarted. Only perform these actons if unable to connect and all other corrective actions have failed.